

## **Commodity Movements**

# Commodity Flow Survey

## Abstract

The Commodity Flow Survey (CFS) provides data on the movement of freight by type of commodity shipped and by mode of transport. The CFS is a continuation of statistics collected in the Commodity Transportation Survey from 1963 through 1977, and includes major improvements in methodology, sample size and scope. The Bureau of the Census used a sample of 200,000 domestic establishments randomly selected from a universe of about 800,000 in manufacturing, mining, wholesale, and some selected activities in retail and service. Each selected establishment reported a sample of shipments for a two-week period in each of the four calendar quarters of 1993. This produced a total sample of about 12 million shipments. For each sampled shipment, respondents reported domestic origin and destination, Standard Transportation Commodity Classification (STCC) code, weight, value, and modes of transport. Respondents also provided information on whether the commodity was shipped in a container, a hazardous material, or an export.

## Source of Data

A sample of manufacturing, mining, wholesale, auxiliary warehouses, and selected retail and service establishments completed a questionnaire.

## Attributes

Geographic Coverage of Data: U.S. totals, state, 89 National Transportation Analysis Regions (combination of Bureau of Economic Analysis Economic Areas)

First Developed: 1993

Update Frequency: Quinquennial (next planned survey year is 1997)

File Format: Aggregate data only will be released

Media: CD-ROM, Printed source, Internet

## Significant Features/Limitations

The 1993 CFS differs from previous surveys in expanded coverage of intermodal transportation, additional industry coverage, and more detailed geographic levels. Earlier surveys reported only the principal mode. The 1993 survey asked for all modes used for the shipment (for-hire truck, private truck, rail, water, pipeline, air, parcel delivery or U.S. Postal Service, other mode, unknown). The 1993 CFS produces data at the U.S., state, and National Transportation Analysis Region (NTAR) levels. There are 89 NTARs, comprised of BEA Economic Areas covering the United States.

The 1993 CFS does not cover shipments of crude petroleum and imports, which primarily affect water transportation and pipelines. Oak Ridge National Laboratory has estimated commodity flows for these two categories. Also, the Survey does not cover establishments classified in the Standard Industrial Classification as farms, forestry, fisheries, oil and gas extraction, governments, construction, transportation, households, foreign establishments, and most retail and service businesses. Furthermore, the CFS does not cover data on shipments originating in Puerto Rico and other U.S. territories and possessions. Commodities that are shipped from a foreign location to another foreign destination, through the United States (e.g., from Canada to Mexico) are also excluded from the Survey.

## **Corresponding Print Source**

1993 Commodity Flow Survey: U. S. Preliminary Report (by Census Bureau)

1993 Commodity Flow Survey: Area Reports for 50 States (by Census Bureau)

1993 Commodity Flow Survey: Preliminary Observations (by the Bureau of Transportation Statistics)

1993 Commodity Flow Survey: State Summaries (by the Bureau of Transportation Statistics)

## **Sponsoring Organization**

U.S. Department of Transportation, Bureau of Transportation Statistics; and the U.S. Department of Commerce, Bureau of the Census

## **Performing Organization**

Department of Commerce, Bureau of the Census; and Oak Ridge National Laboratory

## **Availability**

CD-ROM and Printed Sources: Bureau of the Census, Commodity Flow Survey Branch, Services Division, Washington, DC 20233; (301) 457-2805.

CD-ROM and Printed Sources: DOT/Bureau of Transportation Statistics, 400 7th Street, SW, Room 3430, Washington, DC 20590; (202) 366-3282; Fax: (202) 366-3640.

Internet: [www.bts.gov](http://www.bts.gov).

## **Contact for Additional Information**

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## Commodity Movements Originating in Pennsylvania Summary of 1993 CFS

In Pennsylvania, the CFS measured \$249 billion of goods weighing 417 million tons.

Pennsylvania accounted for approximately 4 percent of the value and the weight of total U.S. shipments. (See attached table.) The CFS data cover shipments by establishments in mining, manufacturing, wholesale, and selected retail and service industries. The data exclude most shipments of crude oil; therefore, the totals and percentages do not fully reflect the contribution of pipeline shipments.

The major commodities shipped by establishments in Pennsylvania vary when measured by value and by weight of the shipments. The top two most important commodities by value were: food and kindred products; and chemicals and allied products. Other important commodities by value were primary metal products; machinery, including computers; and electrical machinery, equipment, or supplies. Important commodities by weight were: nonmetallic minerals; coal; petroleum or coal products; clay, concrete, glass, or stone products; and food and kindred products.

Local transportation of freight is important to Pennsylvania's commerce. The distribution of commodities by domestic destination and distance of shipments reflects the importance of local transport. The CFS shows that in 1993, about 35 percent of the value and 62 percent of the weight of total shipments from Pennsylvania were shipped to destinations within the state. About 29 percent of the value and about 57 percent of the weight of all shipments were

between places less than 50 miles apart. In comparison, about 30 percent of the value and 56 percent of the weight of total U.S. shipments were between places less than 50 miles apart. In Pennsylvania, about 44 percent of the value of shipments and 70 percent of the weight of shipments were between places less than 100 miles apart.

Almost two-third (65 percent) of the value and over one-third (38 percent) of the weight of all shipments from Pennsylvania went to other states. The most important destination states by value of shipments were: New York, New Jersey, Ohio, Maryland, and California. The most important destination states by weight of shipments were: Maryland, New York, New Jersey, Ohio, and Delaware.

Most commodities (81 percent of the value and 72 percent of the weight) were moved by trucks. Rail accounted for about 3 percent of the value and 17 percent of the weight of shipments. Water transportation moved 1 percent of the value and 8 percent of the weight of shipments. The CFS data confirm the rising importance of parcel, U.S. postal, and courier services that have emerged in recent years. In 1993, this mode of transport was used to ship 907,000 tons of goods worth over \$28 billion or 11 percent of the value of all shipments in Pennsylvania. In comparison, about 9 percent of the value of total U.S. shipments were moved by this mode.

1993 Commodity Flow Survey State Summary: Pennsylvania  
Tabulation by the Bureau of Transportation Statistics, U.S. Department of Transportation

	Value	Weight
Summary		
Total shipments originating in Pennsylvania	\$248.8 billion	416.9 million tons
Percent of total U.S. shipments (preliminary U.S. estimate)	4.1	4.2

Commodity Shipments Originating in Pennsylvania Ranked by Value		Commodity Shipments Originating in Pennsylvania Ranked by Weight	
Commodity	Percent of value	Commodity	Percent of weight
Food and kindred products .....	16.9	Nonmetallic minerals .....	22.8
Chemicals or allied products .....	10.6	Coal .....	19.3
Primary metal products .....	7.1	Petroleum or coal products .....	18.0
Machinery, including computers .....	6.9	Clay, concrete, glass, or stone products .....	9.2
Electrical machinery, equipment, or supplies .....	5.6	Food or kindred products .....	8.0
Other commodities .....	52.8	Other commodities .....	22.7
Total .....	100.0	Total .....	100.0

Domestic Destinations of Shipments Originating in Pennsylvania Ranked by Value		Domestic Destinations of Shipments Originating in Pennsylvania Ranked by Weight	
State	Percent of value	State	Percent of weight
Pennsylvania .....	35.3	Pennsylvania .....	61.9
New York .....	8.5	Maryland .....	7.0
New Jersey .....	8.4	New York .....	5.7
Ohio .....	4.5	New Jersey .....	4.7
Maryland .....	4.5	Ohio .....	3.8
California .....	3.4	Delaware .....	2.9
Other States .....	35.4	Other States .....	14.0
Total .....	100.0	Total .....	100.0

Modes of Transportation for Shipments Originating in Pennsylvania		
Modes	Percent of value	Percent of weight
Parcel, U.S. Postal Service, or courier service .....	11.4	0.2
Truck (for-hire, private, and both private truck and for-hire truck) .....	80.7	72.2
Air (including truck and air) .....	1.1	-
Rail .....	2.9	16.9
Water (inland water, Great Lakes, deep sea, truck and water, and rail and water) ....	0.9	8.1
Pipeline* .....	-	-
Truck and rail intermodal combination .....	0.1	0.1
Other intermodal (truck and pipeline, inland and Gt. Lakes, inland and deep sea) ....	**	**
Other, unknown, and withheld for sampling and disclosure reasons .....	2.9	2.5
Total .....	100.0	100.0

Domestic Distance Shipped for Commodities Originating in Pennsylvania		
Distance	Percent of value	Percent of weight
Less than 50 miles .....	28.9	56.8
50 to 99 miles .....	15.5	13.2
100 to 249 miles .....	19.2	16.5
250 to 499 miles .....	13.9	8.1
500 to 749 miles .....	8.0	2.6
750 to 999 miles .....	4.0	1.0
1,000 to 1,499 miles .....	4.3	0.7
1,500 to 1,999 miles .....	1.0	**
2,000 miles or more .....	5.2	0.7
Total .....	100.0	100.0

\* CFS data for pipelines exclude most shipments of crude oil.

\*\* Some or all data suppressed to avoid disclosure or because data are statistically unreliable.

- Represents zero or less than 1 unit of measurement.

NOTE: Data are estimates based on a sample and subject to error. See Appendix B, "Reliability of the Data," in source document.

SOURCE: U.S. Department of Commerce, Bureau of the Census, 1992 Census of Transportation, Communications, and Utilities, 1993 Commodity Flow Survey, TC92-CF (Washington, DC: 1996).

90-Percent Confidence Intervals for 1993 Commodity Flow Survey State Summary: Pennsylvania  
 Tabulation by the Bureau of Transportation Statistics, U.S. Department of Transportation

Summary	Value	Weight
Total shipments originating in Pennsylvania (in billion \$ and million tons)	236.11 - 261.49	381.92 - 451.88
Percent of total U.S. shipments (preliminary U.S. estimate)	3.87 - 4.33	3.83 - 4.57

Commodity Shipments Originating in Pennsylvania Ranked by Value		Commodity Shipments Originating in Pennsylvania Ranked by Weight	
Commodity	Percent of value	Commodity	Percent of weight
Food and kindred products .....	15.6 - 18.3	Nonmetallic minerals .....	18.1 - 27.5
Chemicals or allied products .....	8.4 - 12.8	Coal .....	13.9 - 24.8
Primary metal products .....	6.4 - 7.7	Petroleum or coal products .....	8.8 - 27.3
Machinery, including computers .....	6.0 - 7.8	Clay, concrete, glass, or stone products .....	7.4 - 11.1
Electrical machinery, equipment, or supplies .....	4.8 - 6.5	Food or kindred products .....	7.1 - 9.1
Other commodities .....	(NA)	Other commodities .....	(NA)
Total .....	(X)	Total .....	(X)

Domestic Destinations of Shipments Originating in Pennsylvania Ranked by Value		Domestic Destinations of Shipments Originating in Pennsylvania Ranked by Weight	
State	Percent of value	State	Percent of weight
Pennsylvania .....	33.3 - 37.2	Pennsylvania .....	59.0 - 64.9
New York .....	7.5 - 9.5	Maryland .....	4.4 - 9.6
New Jersey .....	7.7 - 9.1	New York .....	5.2 - 6.2
Ohio .....	4.2 - 4.9	New Jersey .....	4.1 - 5.4
Maryland .....	4.0 - 5.0	Ohio .....	2.6 - 4.9
California .....	3.0 - 3.7	Delaware .....	1.6 - 4.2
Other States .....	(NA)	Other States .....	(NA)
Total .....	(X)	Total .....	(X)

Modes of Transportation for Shipments Originating in Pennsylvania		
Modes	Percent of value	Percent of weight
Parcel, U.S. Postal Service, or courier service .....	10.4 - 12.4	(X)
Truck (for-hire, private, and both private truck and for-hire truck) .....	78.9 - 82.5	68.1 - 76.3
Air (including truck and air) .....	0.9 - 1.3	(X)
Rail .....	2.1 - 3.7	11.1 - 22.7
Water (inland water, Great Lakes, deep sea, truck and water, and rail and water) ..	0.5 - 1.3	5.8 - 10.5
Pipeline* .....	(X)	(X)
Truck and rail intermodal combination .....	(X)	(X)
Other intermodal (truck and pipeline, inland and Gt. Lakes, inland and deep sea) ..	(X)	(X)
Other, unknown, and withheld for sampling and disclosure reasons .....	2.4 - 3.4	1.8 - 3.2
Total .....	(X)	(X)

Domestic Distance Shipped for Commodities Originating in Pennsylvania		
Distance	Percent of value	Percent of weight
Less than 50 miles .....	27.4 - 30.4	52.7 - 60.9
50 to 99 miles .....	14.5 - 16.5	10.6 - 15.8
100 to 249 miles .....	18.4 - 20.0	13.4 - 19.6
250 to 499 miles .....	13.4 - 14.4	6.6 - 9.6
500 to 749 miles .....	7.3 - 8.7	2.3 - 2.9
750 to 999 miles .....	3.7 - 4.3	0.8 - 1.2
1,000 to 1,499 miles .....	3.8 - 4.8	0.5 - 0.9
1,500 to 1,999 miles .....	0.8 - 1.2	(X)
2,000 miles or more .....	4.5 - 5.9	0.5 - 0.9
Total .....	(X)	(X)

\* CFS data for pipelines exclude most shipments of crude oil.

NA Not available.

X Not applicable.

NOTE: For explanation of 90-percent confidence intervals see Appendix B, "Reliability of the Data," in source document.

SOURCE: U.S. Department of Commerce, Bureau of the Census, 1992 Census of Transportation, Communications, and Utilities, 1993 Commodity Flow Survey, TC92-CF (Washington, DC: 1996).

**1993 Commodity Flow Survey**  
**Out-of-State Shipments as Percent of State's Total Shipments**

State	Percent of value	Percent of weight
Alabama	66.2	28.8
Alaska	19.2	17.4
Arizona	57.3	23.0
Arkansas	73.7	41.0
California	38.8	8.8
Colorado	57.6	23.8
Connecticut	79.2	23.0
Delaware	85.2	72.2
Florida	36.8	18.2
Georgia	66.8	28.3
Hawaii	7.4	10.8
Idaho	68.2	35.5
Illinois	66.0	42.6
Indiana	71.6	43.9
Iowa	64.9	39.6
Kansas	74.7	46.2
Kentucky	75.6	51.0
Louisiana	50.7	33.6
Maine	65.5	27.2
Maryland	69.0	43.4
Massachusetts	66.5	28.3
Michigan	52.1	26.1
Minnesota	60.0	41.3
Mississippi	71.3	43.9
Missouri	73.5	36.6
Montana	47.0	57.8
Nebraska	70.9	51.0
Nevada	74.1	19.0
New Hampshire	77.8	**
New Jersey	68.7	40.6
New Mexico	51.7	40.3
New York	58.8	23.8
North Carolina	61.9	30.4
North Dakota	62.5	43.9
Ohio	62.5	30.0
Oklahoma	65.5	45.1
Oregon	58.5	19.8
<b>Pennsylvania</b>	<b>64.7</b>	<b>38.1</b>
Rhode Island	79.1	45.8
South Carolina	69.5	36.5
South Dakota	60.0	44.9
Tennessee	74.4	39.2
Texas	40.0	16.3
Utah	63.8	19.2
Vermont	65.8	31.9
Virginia	63.5	28.4
Washington	44.2	16.2
West Virginia	74.6	63.7
Wisconsin	64.9	30.5
Wyoming	70.8	84.3

\*\* Some or all data suppressed to avoid disclosure or because data are statistically unreliable.  
SOURCE: U.S. Department of Commerce, Bureau of the Census, *1992 Census of Transportation, Communications, and Utilities, 1993 Commodity Flow Survey*, TC92-CF (Washington, DC: 1996).

**1993 Commodity Flow Survey**  
**Shipments to Pennsylvania from Neighboring States**

<b>State of origin</b>	<b>Value (million dollars)</b>	<b>Weight (thousand tons)</b>	<b>Percent value of state's shipments*</b>	<b>Percent weight of state's shipments*</b>
Delaware	2,518	7,292	15.6	30.0
Maryland	8,380	8,494	8.5	6.9
New York	14,730	10,297	5.6	4.7
New Jersey	21,654	17,414	8.6	9.7
Ohio	17,070	18,734	5.2	4.0
West Virginia	2,589	23,239	7.4	9.9

\* Percentages are based on total shipments originating in neighboring states.  
- Data do not meet publication standards.

SOURCE: U.S. Department of Commerce, Bureau of the Census, *1992 Census of Transportation, Communications, and Utilities, 1993 Commodity Flow Survey*, TC92-CF, 1996 (Washington, DC: 1996).